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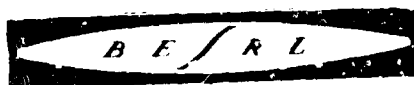
Technical Research Note 226

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EVALUATION OF MAN-COMPUTER INPUT TECHNIQUES FOR MILITARY INFORMATION SYSTEMS

Michael H. Strub

SUPPORT SYSTEMS RESEARCH DIVISION



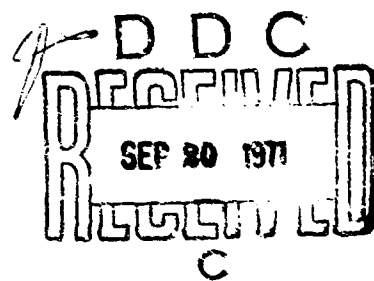
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<p>The present publication describes the evaluation, in terms of speed and accuracy, of four configurations of procedures for inputting information into a semi-automated information processing system. Sixty USMA Prep School enlisted men were given an experimental task requiring each to translate 35 free-text messages into computer-acceptable terminology. Accuracy and speed of two input procedures were each compared under two conditions of verification. In one procedure, the subjects translated the incoming message onto a paper format before transcribing on a CRT screen (off-line). In the other procedure, the message was transcribed directly on the CRT screen (on-line). In the unverified condition, one man performed the input operation without error check; in the verified condition, two men translated the same message, compared their translations, and resolved differences before entering the information into the data base. Performance results under the four experimental conditions were also compared with a similar 7th Army TOS procedure in which a message is translated onto a paper format and the unverified message is copied on the CRT screen by the UIOD (user input-output device) operator.</p> <p>In the present experiment, data input accuracy was significantly increased when free-text messages were translated directly on the CRT screen rather than first filled out on paper formats (11.2% error vs 14.8%). Input speed was practically the same under both methods. When two operators checked each other's translation before inputting to the data base, error was reduced by one-third (10.3% vs 15.7%), but the procedure required one-third more time (6.81 min vs 4.98 min). Either procedure was an improvement in accuracy over the work method used in the TOS. The present study strongly</p>		

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suggests that incoming messages should be translated directly on the CRT screen. Direct CRT input would reduce error while eliminating paper formats and need for UIOD operator transcription. Findings further suggest that, when time and personnel permit, messages should be verified for consistency before entering the information into the data base.

Technical Research Note 226

AD

EVALUATION OF MAN-COMPUTER INPUT TECHNIQUES FOR MILITARY INFORMATION SYSTEMS

Michael H. Strub

SUPPORT SYSTEMS RESEARCH DIVISION
Joseph Zeidner, Chief

BEHAVIOR AND SYSTEMS RESEARCH LABORATORY

Office, Chief of Research and Development
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FOREWORD

Technological advancements have led to increased speed, mobility, and destructive power of military operations. To permit commanders to make tactical decisions consistent with rapid change and succession of events, information on military operations must be processed and used more effectively than ever before. To meet this need, the Army is developing automated systems for receipt, processing, storage, retrieval, and display of different types and vast amounts of military data. There is a concomitant requirement for research to determine how human abilities can be utilized to enable command information processing systems to function with maximum effectiveness.

BESRL's manned systems research in this area is directed toward the enhancement of human performance and facilitation of man-machine interaction in relation to total system effectiveness. It involves experimentation with various configurations of system components, considering interactions and tradeoffs. The end products—immediate or ultimate—are scientific findings on human capabilities under varying conditions within the system. The findings have implications for systems design, development, and operational use. The present publication describes the evaluation, in terms of speed and accuracy, of four configurations of procedures for inputting information into a semi-automated information processing system.

The entire research effort is responsive to requirements of RDT&E Project 2C024701A723, "Human Performance in Military Systems," FY 1971 Work Program, and to special requirements of the Assistant Chief of Staff for Force Development, the Assistant Chief of Staff for Intelligence, the U. S. Army Combat Developments Command, and the U. S. Army Computer Systems Command.



J. E. UHLANER, Director
Behavior and Systems
Research Laboratory

EVALUATION OF MAN-COMPUTER INPUT TECHNIQUES FOR MILITARY INFORMATION SYSTEMS

BRIEF

Requirement:

To evaluate alternative procedures for preparation and input of information into an Army tactical operations system.

Procedure:

The accuracy and speed of two input procedures were each compared under two conditions of verification. In one procedure, the incoming message is translated onto a paper format before being transcribed on a CRT screen (off-line). In the other, the message is translated directly on the CRT screen (on-line). In the unverified condition, one man performs the input operation without error check; in the verified condition, two men translate the same message and compare their translations before entering the information into the data base. Results under the four experimental conditions were also compared with a procedure similar to that used in the 7th Army TOS in which a message is translated onto a paper format and the unverified message is copied on the CRT screen by the operator of a user input output device (UIOD). Subjects were 60 enlisted men studying at the USMA Prep School, who were divided into four groups and assigned to the four experimental conditions so as to furnish data for analysis of variance.

Findings:

There were significantly fewer errors when the message was input directly on the CRT than when paper formats were used as an intermediate step (11.2% error vs 14.8%). Speed of input was practically the same under the two methods. When two operators checked each other's translations before the information was entered into the data base, error was reduced by one third (10.3% vs 15.7%), but the procedure took about one-third more time (6.81 min. vs 4.98 min.). Either procedure was an improvement in accuracy over the work method of having the message translated onto a paper format by one "action officer" and then having a UIOD operator copy the format on the CRT and then enter the format into the data base.

Utilization of Findings:

The present research strongly suggests that incoming messages should be translated directly on the CRT screen. Direct CRT input would reduce error while eliminating paper formats and need for the UIOD operator to transcribe the paper formats on a CRT screen -- a considerable saving in effort and materials. While verification by a second operator substantially reduces the number of errors entering the system, a tradeoff against time and manpower must be reckoned with. Present findings suggest that, when time and personnel permit, messages should be verified for consistency before the information is entered into the data base.

EVALUATION OF MAN-COMPUTER INPUT TECHNIQUES FOR MILITARY INFORMATION SYSTEMS

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EVALUATION OF MAN-COMPUTER INPUT TECHNIQUES FOR MILITARY INFORMATION SYSTEMS

BACKGROUND

In any semi-automated system for processing information, the point of entry into the automated subsystem is crucial. It is at this point that a translation process occurs, the end result of which is the input to the automated subsystem. Thus, in any semi-automated system, steps must be taken to insure that this translation is optimal with respect to the criteria of interest in the system.

The Army Tactical Operations System (TOS) is one example of a semi-automated system. Free-text messages arrive at the tactical operations center and must be transformed into appropriate TOS codes before the information can be entered into the computer's data base. In this system, the critical criteria are accuracy and speed. The Army is therefore interested in optimizing the process in terms of having the free-text message translated into appropriate and acceptable computer terms as accurately and rapidly as possible.

There are several potential subsystem configurations that could be designed to deal with the information translation and input problem. Design of future Army TOS such as the Army-wide TOS require research-based data on the relative effectiveness of such configurations in order to evaluate the speed-accuracy tradeoffs within a variety of potential subsystem configurations. However, recent reviews by Mayer (1) and Shackel (2) indicate that few experiments have focused on man-computer input problems.

One potential configuration was incorporated into the 7th Army TOS. However, it is difficult to evaluate the effectiveness of this configuration in the absence of comparable alternatives. In the TOS configuration, one man (usually the action officer) translates the free-text message into the appropriate TOS codes on a paper format. He then hands this hard copy to a second man, the operator of the user input/output device (UIOD), who calls up the appropriate blank format on his CRT screen. The UIOD operator then transcribes the codes from the paper format on the screen.

¹ Mayer, S. R. Trends in human factors research for military information systems. Human Factors, 1970, 12, 177-186.

² Shackel, B. Man-computer interaction--The contribution of the human sciences. Ergonomics, 1969, 12, 485-499.

Certain questions may be raised concerning the process just described. The first is the need for paper formats. Paper formats must be preprinted and represent a considerable amount of material that must be transported with the TOS equipment wherever it moves. Also, the hard copy record which results is not particularly helpful, since the message log provides a manual back-up. Finally, there is the administrative problem of handling the completed formats which contain classified information. Disposal of used forms by burning might divulge the location of the command post. What effect would elimination of paper formats have on the accuracy and speed of data input?

A second question is the potential value of introducing error checking (verification) into the input procedure. Does verification result in a significant decrease in the number of errors entering the system over the number entering without verification? If so, how much input time is added by error checking? Is the cost in time worth the payoff in accuracy?

The present experiment addressed itself to these questions. The experimental task was the translation of free-text messages into computer-acceptable terminology. Table I indicates the four conditions tested. In the off-line preparation mode (I and II), the message was first translated onto a paper format worksheet prior to its transcription onto the CRT screen and entry into the system. In the on-line preparation mode (III and IV), the message was translated directly on the CRT screen, bypassing the step of first preparing a paper format. Data on accuracy and speed of information translation and transcription in the on-line conditions were obtained for comparison with the off-line conditions in which the message was first prepared on a paper format. This comparison determined what change in performance could be expected from the elimination of paper formats.

Table I

TWO BY TWO CONTINGENCY TABLE SHOWING EXPERIMENTAL
CONDITIONS I-IV

Preparation Mode	Data Verification	
	Unverified	Verified
Off-Line	I	II
On-Line	III	IV

In the unverified conditions (I and III), one man translated the message into acceptable codes and entered the information into the data base without formal error check. These conditions were compared with verified conditions (II and IV), in which two men translated the same message and verified their answers before entering the information into the data base. This comparison permitted an assessment of the effect of input verification on system error and message input time.

METHOD

Subjects

Sixty subjects, randomly assigned to four groups, served in the experiment. Three groups (I, II, III in Table 1) consisted of 12 subjects each and the fourth (IV) consisted of 24 subjects. Subjects were enlisted men enrolled at the U. S. Army Military Academy Prep School. Since a large percentage of the subjects qualified for admittance to West Point, it was judged that these subjects were apt candidates for serving as action officers in the experimental task. Each subject received a sheet of paper explaining the specific procedure he was to follow. The procedure varied according to the experimental condition to which the subject was assigned. Six subjects served in each experimental session, one subject per station. Four of the six stations are shown in Figure 1. The two subjects on the left were monitored by one experimenter, the two on the right by a second and the two in the back (not shown in Figure 1) were monitored by a third experimenter.

Procedure

Each subject was issued a notebook containing instructions for translating the free-text messages onto appropriate formats. The instructions were divided into two sections: One section contained instructions for entries common to most of the formats. The second section consisted of five subsections each containing instructions for completing the specific format on which the subject happened to be working. A sample format was provided for each type of format. The subject first consulted the general instructions section and then turned to the instructions section for completing the specific format assigned to him (UA1, UA6, UE2, UF2, UJ2). A sample of the instructions (UA6) appears in the Appendix.^{1/}

The procedures for the four experimental conditions were as follows:

I. Off-line, unverified. In this condition, the subject first translated each message onto a paper format. He then called up the appropriate format on his CRT screen and filled it out, copying from his worksheet.

^{1/} The material in the Appendix consists of excerpts from a manual prepared by the Bunker-Ramo Corporation for the 7th Army TOS Development Group, under contract to the Computer Systems Command.

II. Off-line, verified. Subjects worked in pairs. Each subject translated each message onto a paper format. The pair then exchanged paper formats and each called up the appropriate format on his CRT screen and copied from the other's paper. The pair then compared answers, recorded any differences on a sheet provided, resolved the differences, and entered the consensus version into the data base.

III. On-line, unverified. The subject translated the message directly on the CRT screen.

IV. On-line, verified. Subjects worked in pairs. Each subject translated the message directly on the CRT screen; the two then proof-read their screens to each other and resolved any differences they detected. They then entered the consensus version into the data base.



Figure 1. "Action Officer" subjects manning four of the six stations in the experiment.

The original number of messages to be completed was 50--10 different messages for each of 5 different types of format. Forty-eight random orderings of the 50 messages were prepared. Subsequent to the message ordering, pilot data were collected on four subjects. These data indicated that 50 messages would require more time to complete than could be afforded by the subjects. The number of messages was therefore trimmed to 35 by deleting the last three messages for each of the five format types. Thus, while 50 different messages were used in the experiment, no subject received more than 35. Within each format type, messages were judged equal in difficulty. Some subjects did not have time to complete all 35 messages. Chi square analyses of omitted messages indicated that an equal number of format types were omitted within each condition.

Stimulus Materials and Apparatus

The following stimulus materials and apparatus were used:

- Free-text messages typed on 5" x 8" sheets of paper
- Paper formats
- CRTs
- Instructions notebooks

A message similar to the ones provided the subjects is shown in Figure 2. The appropriately completed message worksheet appears in Figure 3. Figure 4 shows a subject filling out the format on his CRT screen.

Independent Variables

The experimental design was a 2 x 2 factorial with 12 subjects in 3 cells (I, II, III in Table 1) and 12 pairs in cell IV.

The two independent variables were preparation mode and verification, each at two levels. For the preparation mode variable, levels were off-line versus on-line, referring to the presence and absence of paper formats. Verified versus unverified were the two levels of the second variable.

Dependent Variables

The major dependent variables were 1) accuracy as determined by the error rate for each message completed by the subject and 2) speed, measured as the time taken to translate the message and enter data into the system.

Accuracy. The measure of accuracy was an error score. For each format completed by a subject, the number of errors made was divided by the total number of entries for that format. Thus, if the subject made three errors and there was total of 11 entries on a particular format, his error score would be 3/11 or 27%. A mean error score for a subject

was computed by summing the individual error scores for each format completed and dividing by the total number of formats completed. In the on-line verified condition, error scores were the means of the pair of subjects. This procedure resulted in 12 mean error scores for each of the four conditions. These scores were entered into an analysis of variance.

Time Score. The time score for each message was the total time to translate and enter the message into the system including, where appropriate, time to complete the paper format, time to input the information on the CRT screen, and time to verify the data.

RESULTS

Accuracy

Results of the analysis of variance on the error scores are presented in Table 2. They are quite straightforward. First, for conditions in which the message was input directly on the CRT, the error rate was significantly less than when the message content was first translated onto paper worksheets and then entered on the CRT. The mean error rate for direct CRT input was 11.2% while that for worksheet method of preparation was 14.8%. As indicated in Table 2, this difference yields an $F(1,44df)$ of 7.60, which is significant at the .01 level. The second result that clearly emerges is that the error rate under the verified input conditions was significantly less than under the unverified input conditions.

UAS

ROUTINE, UNCLASSIFIED REQUEST FROM VXG3 FOR A REPORT OF
ALL MISSILE BNS ORGANIZED AFTER 150700ZJAN70. DON'T REPORT
ANYTHING FROM VXG3 OR THAT WAS EFFECTIVE BEFORE 150700ZJAN70.
SEND ALSO TO CMG3. DON'T REPORT EXISTING UNITS. VALID UNTIL
CANCELLED.

Figure 2. Sample message

U A 6		FRIENDLY UNIT INFORMATION	
PRECEDENCE: HANCOCK		(TASK ORGANIZATION / TASK FORCE SRI ESTABLISH)	
R	Y		
ORIGIN: V X G 3		SCTY: I / U N G L A S: FORMAT /	
VALID-TO: I / O P E M		: INHIBIT-OWN / Y E S: QUERY /	
RECIPIENTS: C M G 3			
UNIT: /			
TF-NAME: /			
ECHELON: E Q U A L		B N	
TYPE: M S L			
BRANCH: /			
CATEGORY: /			
NATION: U S			
SUBOR-TYPE: /			
SUBOR-TO: /			
TIME-FRAME: FROM		1 5 0 7 0 0 Z J A N 7 0 / TO	
ENTERED-BY: /		: CLASSIFIED /	

Figure 3. Example of completed format for message in Figure 2.



Figure 4. "Action Officer" subject completing format on CRT.

The mean error rate for verified inputs was 10.3% while that for the unverified entries was 15.7%. The differences yielded an $F(1,44df)$ of 17.48 (Table 2), significant at the .001 level.

Time Score

Profiles of message input time indicated that the first two or three messages required extremely long preparation time, presumably while subjects were learning the fundamentals of translating the messages onto formats. To reduce the effect of the early time scores, median time scores were analyzed. For the on-line verified condition, the median time scores for each pair of subjects were averaged. Table 3 shows the results of an analysis of variance of the median time scores. The results indicated no difference in the time required to input directly on the CRT compared to first filling out a paper format. The average median time for these conditions was 5.88 minutes and 5.90 minutes, respectively. However, time scores were significantly higher in the verified than in the unverified input conditions. The average median time for verified inputs was 6.81 minutes, for unverified inputs 4.98 minutes. This difference yielded an $F(1,44df)$ of 27.46, significant at the .001 level.

While median time was judged to be more representative of time taken to complete a message, mean times were also analyzed. Results complemented those obtained using median scores.

Table 2

ANALYSIS OF VARIANCE SUMMARY TABLE ON MEAN ERROR RATES

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Preparation Mode	155.16	1	155.16	7.60	.01
Verification	356.98	1	356.98	17.48	.001
Interaction	.93	1	.93	--	--
Error	<u>898.60</u>	<u>44</u>	20.42		
	1411.67	47			

Table 3

ANALYSIS OF VARIANCE SUMMARY TABLE ON MEDIAN TIME SCORES

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Preparation Mode	15	1	15	--	--
Verification	145530	1	145530	27.46	.001
Interaction	4780	1	4780	--	--
Error	<u>233099</u>	44	5298		
	383424	47			

Discussion

With respect to the criterion of accuracy, no gain accrues by first filling out a message on a paper format worksheet and then entering it on the CRT. In fact, errors are significantly reduced when the message is translated directly on the CRT screen, bypassing the paper format. Furthermore, direct CRT input is no more time-consuming than off-line preparation.

In a direct CRT input procedure, an action officer could format the message directly on the CRT screen. Paper formats would be eliminated, as well as the need for a UIOD operator in his present role as transcriber. Such a deletion would result in considerable saving of material and manpower.

It is legitimate to speculate on the attitude of the action officer toward inputting directly on the CRT. He might consider such a task menial and therefore resent it. There is some evidence, however, to suggest that action officers would be willing to use the CRTs. In a recent survey of staff action officers and noncommissioned officers who had used 7th Army TOS, Mace and Baker (3) found that 82% of the respondents believed the action officer capable of operating the UIOD.

Error checking was also found to significantly reduce the number of errors entering the system. Error checking in the present experiment reduced the error rate by one-third. In this case, however, there is a tradeoff to be reckoned with: While verification can reduce the error rate substantially, it does so at a cost of time. Verified data input required approximately two minutes per message longer than unverified inputs. Thus, the one-third reduction in error rate was accompanied by approximately a one-third increase in time.

³Mace, D. J. and J. D. Baker. An assessment of the impact of automation on field Army users: V. Post field exercise findings. BESRL Technical Research Note (in preparation).

SUPPLEMENTARY ANALYSIS

In the 7th Army TOS, an action officer translated a message onto a paper format and handed it to a UIOD operator to log into the system. Such a procedure involves paper formats and unverified data inputs, both of which the present research has shown to be sources of error. Another potential source of error existed in the 7th Army TOS procedure. The UIOD operator had to copy from a worksheet prepared by someone else. Judging from a previous BESRL experiment (4), procedures involving entry of photointerpretation data into a computer without a transcriber's acting as intermediary had the most potential for efficient man-computer communication.

In order to determine what error rate would be expected if the TOS procedure had been employed in the present experiment, additional data were collected using the TOS procedure. One man acting as the action officer translated the free-text message onto a paper format and handed it to a UIOD operator who called up the appropriate format on his CRT, copied from the paper format on the CRT, and entered the completed format into the data base. Data were collected for twelve such pairs of operators. The subjects were enlisted men who had recently graduated from the Photo Intelligence School at Fort Holabird, Maryland. The error rate for this condition is shown in Table 4, along with comparable error rates for the other four conditions. The TOS condition yielded the highest error rate, 21.3%.² In order to obtain an estimate of the number of copying errors made by the subject acting as the UIOD operator in the TOS condition, the message worksheets filled out by the subjects acting as action officers were scored. The mean error rate for the TOS worksheets was 13.6%. Thus, copying errors added 7.7% to the error rate, increasing the error rate by 57%.

⁴Root, R. T., D. Waugh, K. Hewitt, and J. Donoghue. An Analysis of interpreter-computer reporting techniques. BESRL Technical Research Note 170. June 1966. (AD 645 293).

²In the 7th Army TOS, for example, the computer performed an error check on "mandatory" entries through an edit and validate subroutine. Any incorrect mandatory entry would result in the entire message's being returned for correction and reentry. The present experimental conditions did not involve machine error checking. The programming required to incorporate this feature into the present study would have been prohibitive in time and costs. Also, it was considered better to make the commission of such errors irrevocable in order to get clear-cut error rates per trial. Machine verification would perhaps have lowered error rate across all the experimental conditions. Error for the TOS condition should therefore be considered with respect to other conditions in the present experiment.

Table 4

COMPARISON OF TOS ERROR RATE WITH THAT OBTAINED
UNDER EXPERIMENTAL CONDITIONS

TOS	Off-line Unverified	Off-line Verified	On-line Unverified	On-line Verified
21.3%	17.6%	11.9%	13.7%	8.6%

The obtained error rate of 13.6% is in close agreement with the error rate of 13.7% obtained in the on-line unverified condition. Thus, 13-14% appears to be a stable baseline estimate of the error rate for translating a free-text message onto a computer-acceptable format. This estimate includes only errors committed by translating the message contents onto the appropriate format.

The problem of selecting the appropriate format was not involved in the present experiment (subjects were informed of the correct format), but is dealt with elsewhere by Baker and his associates (5), who found an error rate of 22% in selecting the appropriate format. Considered together, these estimates indicate the error rates that can be expected from the processes of format selection and completion in a TOS-type system in which there is neither man nor machine verification.

Further analyses were conducted on the error data, categorizing errors into different types--errors of omission, commission, copying, etc. These analyses revealed that, for the most part, the error-reducing effects of on-line inputting and verification consistently reduce errors of all types. The analyses confirmed the above-mentioned finding that most of the increase in error in the TOS condition comes from copying errors.

Research directed toward the development of an input error taxonomy is in progress. The taxonomy will be incorporated into a general model of human performance in information systems [see Baker (6)] to permit evaluation of the impact of each input error type at every stage of

⁵ Baker, J. D., D. J. Mace, and J. M. McKendry. The transform operation in TOS: Assessment of the human components. BESRL Technical Research Note 212. August 1969. (AD 697 716)

⁶ Baker, J. D. Quantitative modeling of human performance in information systems. *Ergonomics*, 1971, 13, 645-664.

system throughput, as well as on overall system performance. Once critical error types have been identified, appropriate remedial steps may be taken. At the present time, it is hypothesized that there are critical input errors which would not be detected by the system software (e.g., inverted digits in a map coordinate). The taxonomy, when developed, and the resulting implications for system design will be published in a future BESRL report.

CONCLUSIONS

Admittedly, not all possible procedures were sampled. As automated information processing systems evolve, other procedures may emerge that are not evident at this time. The approach taken here was to seek generalizable results for design consideration over many systems (TOS, TACFIRE, IBCC, etc.). Specific detailed studies of various input techniques should be subsequently evaluated in the context of system test and evaluation efforts.

In the present experiment, data input accuracy was significantly increased when free-text messages were translated directly on the CRT screen rather than first filled out on paper formats. The implication for improved system performance based on this finding is clear: Incoming messages should be translated directly on the CRT screen. This procedure would eliminate the need for paper formats.

Accuracy of data input was also significantly increased when the data were verified before being entered into the system. Such a procedure did, however, significantly increase data input time, and is therefore recommended only if time and personnel permit. In that case, each message should be formatted independently by two action officers and verified for consistency before the information is entered into the data base.

Results with a procedure similar to that used in the 7th Army TOS, in which a UIOD operator transcribes paper formats on the CRT, indicated that copying errors introduced by the UIOD operator increases the error rate from 13.6% to 21.3%. This finding lends further support to the conclusion that the transcribing step should be dropped from the input procedure.

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APPENDIX

INSTRUCTIONS TO SUBJECTS FOR TRANSLATING FREE-TEXT MESSAGES
INTO APPROPRIATE TOS CODES

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GENERAL INSTRUCTIONS

In most problems, you will enter the following items of information:

PRECEDENCE - Establishes the priority of the message.

<u>If the precedence</u>	<u>you enter</u>
Flash	F
Immediate	I
Priority	P
Routine	R

HARD COPY - Always enter a Y

ORIGIN - Identifies the originator of the message. ORIGIN is a combination of a one-character organization code, a one-character headquarters code, and a two-character staff element code, in that order.

EXAMPLE - If the originator of the message were the Third Armored Division, G3, Main, you would enter SMG3 beside ORIGIN. Each message will contain the code identification (such as SMG3) to be entered beside ORIGIN.

SCTY - Identifies the security classification of a message.

<u>If the security is</u>	<u>you enter</u>
Unclassified	UNCLAS
Confidential	CONF
Secret	SECRET

RESTR - Restriction will appear only on certain messages.

<u>If the restriction is</u>	<u>you enter</u>
Originator only	A
Not releasable to foreign nationals	B
Not releasable to foreign nationals except GY	C
Restricted data	D
Formerly restricted data	E
NATO	F
ATOMAL	G
Division and below only	K
Division and above only	L
Corps and below only	M
Corps and above only	N

RESTR (cont'd)

<u>If the restriction is</u>	<u>you enter</u>
Army and below only	O
Army only	P
Intelligence channels only	Q
Logistics channels only	R
Operations channels only	S
Personnel channels only	T
Upward command channels only	U
Downward Command channels only	V

UNIT - The military unit identification or the assigned switchboard designation of the unit.

EXAMPLE - If the data concerned the Third Battalion, Seventy-Sixth Armored unit, you would enter 3-BN-76-ARMD beside UNIT. Each message will contain the code identification (such as 3-BN-76-ARMD) to be entered beside UNIT.

To complete the remainder of the message format, refer to the special instructions which are specific to each format.

INSTRUCTIONS FOR ONE SPECIFIC TYPE OF FORMAT

UA6 - Friendly Unit Task Organization/Task Force SRI Establish

Purpose - The Task Organization/Task Force SRI Establish message is used to establish a standing request for information (SRI) on selected task organization or task force data, data change, and data delete messages.

EXAMPLE MESSAGE - An example message is shown below. The resulting TOS message composed on the appropriate format is illustrated in Figure UA6.

EXAMPLE - SMG3 submits a routine unclassified request for a report on any combat unit of battalion echelon or higher that is being organized or changed from now until 31 August 1967 at 2400 hours when this request is cancelled. Do not report changes input by "SMG3", and do not report the existing task organizations.

FORMAT - Does not apply to any of the messages you will process.

VALID-TO - This information item specifies a time until which this standing request for information (SRI) will remain valid. The entries for this information item are a date-time group specifying the time of the SRI's deletion, or the word OPEN.

EXAMPLE 1 - VALID-TO/312400ZAUG67; The standing request for information described in this message is scheduled to be dropped from the system at 2400 Zulu on 31 August 1967.

EXAMPLE 2 - VALID TO/OPEN; The standing request for information described in this message will remain in the TOS until recipients specifically request its deletion.

INHIBIT-OWN - Allowable entries are YES and NO. If the originator of the SRI enters a YES, he will not receive future output reports distributed in response to this SRI if the output resulted from one of the originator's own input messages. A NO entry will not suppress future output message dissemination.

EXAMPLE: INHIBIT-OWN/YES; The originator of this message will not receive output distributed in response to his own input messages.

QUERY - This information item is used to request an initial interrogation of TOS stored data. Allowable entries are YES and NO. A YES entry will cause the system to immediately query the stored data and send to the SRI originator a query response output message listing units satisfying the retrieval criteria. When NO is entered, the SRI will not query the stored data.

EXAMPLE - QUERY/NO; An initial interrogation of the TOS will not be performed.

RECIPIENTS - This information item is used to designate up to seven recipients, other than the originator, of outputs in response to the SRI.

EXAMPLE - RECIPIENTS/CMG3/CMFS/CMG2/ / / / /; In addition to the initiator of the SRI, G3, Fire Support, and G2 of Cyclone, Main are scheduled to receive copies of any output messages routed as a result of the SRI.

UNIT - The military identification or the assigned switchboard designator of the unit whose data are requested from the TOS.

EXAMPLE - UNIT/12-BN-87-ARTY: Data on the Twelfth Battalion, Eighty-Seventh Artillery are requested from the TOS.

TF-NAME - The code name assigned to a task force for purposes of identification.

EXAMPLE - TF-NAME/UPSTART; Data are requested from the TOS on the task force UPSTART.

ECHELON - This information item may contain two entries. The first entry is a relational operator. Select the appropriate entry from the following table:

Relational-Operator	
	<u>Entry</u>
equal to	EQUAL
less than	LESS
more than	MORE
no more than	NOMORE
no less than	NOLESS

The second entry, when used, consists of a standard military echelon code. The two entries in conjunction define a range of echelons of units whose data are to be retrieved from the TOS.

EXAMPLE-ECHELON/NOLESS/BN; Data are requested only on units of battalion or higher echelon.

TYPE - The originator may use this information item to specify-military type of unit.

EXAMPLE - TYPE/PERSH; Only data on pershing missile units are requested.

BRANCH - The military branch of the unit whose data are requested from the TOS.

EXAMPLE - BRANCH/ARTY: Data are requested only on artillery units.

CATEGORY - The military category of the unit whose data are requested from the TOS.

EXAMPLE - CATEGORY/CBT; Data are requested from TOS only on units in the combat category.

NATION - The nationality of the unit whose data are requested from the TOS. In all messages, the nationality is the United States. Thus, the letters US should be placed beside NATION.

EXAMPLE - NATION/US; Data concerning a United States unit are requested from the TOS.

SUBOR-TYPE - leave blank

SUBOR-TO - leave blank

TIME-FRAME - This information item contains two entries and is used to specify the beginning and ending of a time period.

EXAMPLE - TIME-FRAME/FROM/150800ZSEP67/TO/ /; Indicates that a report on all data messages having an effective time after 0800 Zulu on 15 September 1967 are to be reported.

ENTERED-BY - leave blank

CLASSIFIED - leave blank

